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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Dominic Walsh

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EXAMINER

PATEL, DEVANG R

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

07/12/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/539,348	Applicant(s) WALSH ET AL.	
	Examiner DEVANG R. PATEL	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34,35,37,38,40-42 and 47-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-35,37-38,40-42,47-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. **Claims 34-35, 37-38, 40-42 and 47-52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Winter et al. (US 3846527) in view of Johnson (US 4904424).
 - a. **Regarding claim 34**, Winter et al. ("**Winter**") discloses a method of preparing a porous metal oxide crystalline fibers for catalysts/catalyst supports (abstract; col. 12, lines 30-33). In accordance with broadest reasonable interpretation, such porous, fibrous, catalyst material is equivalent to "rod-shaped, open framework, sponge-like material." Winter discloses preparing an aqueous viscous solution of water-soluble metal salt (col. 3, lines 32-35) and linear-polymeric solvent such as polystyrene, polyisobutylene, polyvinylacetate, polyvinylalcohol, polyacrylic acid, etc. (col. 7, lines 40-50; examples 1-8). In a specific example, Winter discloses preparing a solution of water-soluble aluminum salt and polyethylene oxide, then spinning to obtain Al₂O₃ fibers by heating (baking) in air and thus, the resulting product consists essentially of rod-shaped, metal oxide material (example 6). Winter discloses allowing the solution to self-solidify to form a solid and baking the solid to form the claimed oxide material (col. 11, lines 30-64).
 - b. Winter discloses various polymeric solvents but fails to expressly disclose dextran. **Johnson** (also drawn to making inorganic material including fibers)

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discloses preparing powdery metal alloy solution with a carbonaceous polymer and similar to Winter, Johnson teaches spinning the dispersion solution into fibers and then heating the fibers to form final product (col. 3, lines 16-35). As suitable carbonaceous materials, Johnson discloses polystyrene, polyisobutylene, polyvinyl alcohol, starch, dextran, polyvinyl acetate and such solvents are substantial similar to those taught by Winter (polystyrene, polyisobutylene, polyvinylacetate, polyvinylalcohol). One of ordinary skill in the art would appreciate that the organic solvents of Winter and Johnson are substitutes, as they comprise many of the same compounds, and serve substantially the same purpose. In view of that, it would have been obvious to a person of ordinary skill in the art at the time of the invention to prepare aqueous solution of a metal-salt and dextran in the method of Winter since the use dextran would have yielded predictable result of forming the metal oxide fiber material.

c. **Claim 35** is substantially similar to claim 34 with the exception of including at least two kinds of water-soluble metal salts each having different metal elements. **Winter** teaches that metal salts such as sulfates, chlorides, phosphates and nitrates of Al, Be, Cr, Mg, Th and Zr are well-known in the art (col. 1, lines 56-62). Winter discloses that one or more metal compounds include inorganic salts like the nitrates, sulfates, halides, silicates, phosphates, borates, carbonates, etc. (col. 3, lines 32-35; col. 17, lines 50-65). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to provide at least two distinct water-soluble metal salts in the method

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of Winter in order to prepare desired fiber material for a specific application. The rejection of claim 34 is incorporated herein for the repeated limitations.

d. **As to claims 37-38**, Winter teaches heating at about 900 °C (col. 14, line 62).

e. **As to claims 40-41**, Winter discloses metal salt concentration in the range of 15-60 wt% (examples; col. 17, line 66).

f. **As to claim 42**, Johnson discloses the carbonaceous polymer having a molecular weight in the range of 30,000-300,000 (col. 5, lines 50-63). In view of that, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide dextran having a molecular weight in the instantly claimed ranges through process optimization in the method of Winter, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (MPEP 2144.05).

g. **As to claim 47**, the metal oxide porous material of Winter is soft sponge-like material. It is noted that the terms "soft" or "hard" are relative and subject to broadest reasonable interpretation.

h. **As to claim 48**, Winter teaches the cross-sectional width (fiber diameter) being from 1-50 microns (col. 11, line 37).

i. **As to claims 49-50**, Winter discloses the metal salts can include transition metals or noble metals such as Pt, Rh, Pd, Ag, Au, etc. (col. 17, line 64). The claim would have been obvious because a person of ordinary skill has good

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reason (desired catalyst material) to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.

j. **As to claims 51-52**, Winter discloses that the conventional dry spinning (solidifying) occurs at about 15-60 °C (col. 11, line 32). In view of that, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide drying at the instantly claimed temperature through process optimization in the method of Winter, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (MPEP 2144.05).

Response to Amendment and Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection under Winter (US 3846527) set forth above. Winter does not require a carbon disperse phase in the metal oxide fiber material (unlike previously applied reference to Winter '233) and therefore, the resulting product meets the newly recited "consisting essentially of" limitation.

Applicant argues that both Winter and Johnson conduct a pretreatment of spinning to form fiber, before calcining at high temperature and this is quite distinct from Applicant's process, which discloses molding in a mold at a room temperature. In response to Applicant's argument that the references fail to show certain features of the invention, it is noted that the features upon which applicant relies (i.e., molding) are not

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recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With respect to the temperature recited in new claims 51-52, Winter discloses solidifying (dry spinning) at about 15-60 °C (col. 11, line 32). In view of that, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide drying at the claimed temperature of about 25 °C through process optimization in the method of Winter, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (MPEP 2144.05).

Applicant argues that Johnson is not directed to metal or metal oxide material, but rather ceramic alloy fiber. In response, Examiner points out that Johnson discloses forming ceramic alloys or solid solutions or metal carbides from dispersions of fine metallic particles in carbonaceous polymers (col. 3, lines 1-9). Winter is also directed to forming metal carbides from dispersions of fine metallic particles in carbonaceous polymers (abstract). The processes of Winter and Johnson are similar since they both teach preparing solution by dispersing powder metals in a carbonaceous polymer, spinning the dispersion solution into fibers and then heating the fibers at elevated temperatures to form final product (Winter- abstract; Johnson- col. 3, lines 16-35). Moreover, it is also noted that Johnson mentions the Winter reference (US 3846527) in the background (col. 1, lines 50-60). Therefore, it is the Examiner's position that Winter and Johnson are analogous art and one of ordinary skill in the art would have found it

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obvious to modify the method of Winter to use dextran polymer since doing so would have yielded predictable result of forming the metal oxide fiber material.

Applicant also argues that metal oxide fibers of Winter are not suitable for forming a sponge-like material as required by the claims. In response, Examiner contends that since Winter teaches porous metal oxide crystalline, fibrous material (examples 3-7) suitable as catalyst/catalyst support, in accordance with broadest reasonable interpretation, the fibrous material of Winter is equivalent to "rod-shaped, open framework, sponge-like material."

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

The rejections above rely on the references for all the teachings expressed in the text of the references and/or one of ordinary skill in the art would have reasonably

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understood from the texts. Only specific portions of the texts have been pointed out to emphasize certain aspects of the prior art, however, each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combinations of the cited references may be relied on in future rejections in view of amendments.

Applicant is reminded to specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. 1.121; 37 C.F.R. Part 41.37; and MPEP 714.02.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVANG PATEL whose telephone number is (571)270-3636. The examiner can normally be reached on Monday thru Thursday, 8:00 am to 5:30 pm, EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devang Patel/
Examiner, Art Unit 1793

/Jessica L. Ward/
Supervisory Patent Examiner, Art Unit 1793